

Commercial Crew Program CCDev 2 Milestone Schedule



Commercia	al Crew Program CCDev	2 Sched	ule			Legend:	= Completion Date	□ = Current Plan Date
Funding	Milestone	Completion			2011	2012		2012
		Date	Q2'11		Q3'11	Q4'11	Q1'12	Q2'12
Total: \$80M	Sierra Nevada							
\$12.5M	1 - SRR	06/02/2011	▽					
\$2.5M	2 - Canted Airfoil Fin Selection	06/16/2011	ightharpoons					
\$5M	3 - Cockpit Based Flight Simulator	07/20/2011		∇				
\$10M	4 - Vehicle Avionics Integration Laboratory				∇			
\$12.5M	5 - System Definition Review (SDR)					∇		
\$7.5M	6 - Flight Control Integration Laboratory					∇		
\$12.5M	7 - Engineering Test Article (ETA) Structure Delivery					∇		
\$5M	8 - Separation System Test						∇	
\$12.5M	9 - Preliminary Design Review (PDR)							∇



Commercial Crew Program CCDev 2 Milestone Schedule



Commercia	al Crew Program CCDev	2 Sched	ule			Legend:	= Completion Date	□ = Current Plan Date
Funding	Milestone	Completion			2011		2012	
		Date	Q2'11		Q3'11	Q4'11	Q1'12	Q2'12
Total: \$92.3M	Boeing							
\$10M	1 - NASA Kickoff	04/20/2011	abla					
\$10M	2 - Delta Systems Definition Review (SDR) Complete	05/19/2011	▽					
\$15M	3 - Phase 0 Safety Review Complete	06/16/2011	~					
\$10M	7 - Interim Design Review (IDR) - 4	07/14/2011		∇				
\$7.5M	5 - Landing Air Bag Drop Demo #1				∇			
\$5M	6 - Phase 1 Wind Tunnel Tests					∇		
\$15M	10 - Launch Vehicle Emergency Detection System/Avionics System Integration Facility Interface Simulation Test						∇	
\$10M	4 - Launch Abort Engine (LAE) Fabrication and Hot Fire Test Demo						∇	7
\$4.8M	8 - Parachute Drop Test Demonstration							abla
\$2.5M	9 - Service Module (SM) Propellant Tank Develop Tests							∇
\$2.5M	11 - Preliminary Design Review (PDR) Complete							∇



Commercial Crew Program

CCDev 2 Milestone Schedule



Commercia	al Crew Program CCDev	2 Schedul	е			Legend:	▼ = Completion Date	▽ = Current Plan Date		
Funding	Milestone	Completion			2011			2012		
		Date	Q2'11		Q3'11	Q4'11	Q1'12	Q2'12		
Total: \$75M	SpaceX									
\$10M	1 - CCDev2 Kickoff	05/05/2011	∇							
\$5M	2 - Launch Abort System (LAS) Propulsion Conceptual Design Review	07/26/2011		∇						
\$15M	3 - Design Status Review (DSR) 1				∇					
\$10M	4 - LAS Propulsion Components Preliminary Design Review (PDR)				7	abla				
\$15M	6 - Design Status Review (DSR) 2					∇				
SpaceX Funded	5 - Crew Accommodation Concept Prototype and In-Situ Trial 1						∇			
SpaceX Funded	7 - Crew Accommodation Concept Delta-Prototype and In-Situ Trial 2							∇		
\$5M	8 - LAS Propulsion Component Test Articles Complete							∇		
\$10M	10 - Concept Baseline Review (CBR)							∇		
\$5M	9 - LAS Propulsion Component Initial Test Cycle							∇		

Updated: 8/16/2011



Commercial Crew Program

NA SA

CCDev 2 Milestone Schedule

Commercia	I Crew Program CCDev	2 Schedu	ıle		Legend:		7 = Current Plan Date	
Funding	Milestone	Completion		2011		2012		
		Date	Q2'11	Q3'11	Q4'11	Q1'12	Q2'12	
Total: \$22.005M	Blue Origin							
\$.905M	1 - Space Vehicle (SV) Kickoff Meeting	05/20/2011	abla					
\$2M	2 - Pusher Escape Kickoff Meeting	05/20/2011	∇					
\$3.4M	3 - Reusable Booster System (RBS) Engine Kickoff Meeting	05/20/2011	$\overline{}$					
\$4M	5 - RBS Engine Thrust Chamber Assembly (TCA) Interface and Test Plan Review				∇			
\$.9M	4 - Space Vehicle Mission Concept Review (MCR)				abla			
\$2M	6 - Pusher Escape Test Vehicle #1 Shipment				,	\vee		
\$3M	7 - Pusher Escape Ground Firing					∇		
\$1.9M	8 - Pusher Escape Pad Escape Test						∇	
\$3M	10 - RBS Engine Thrust Chamber Assembly (TCA) Test						∇	
\$.9M	9 - Space Vehicle System Requirements Review (SRR)						∇	

Updated: 8/16/2011 4



Commercial Crew Program

CCDev 2 Milestone Schedule



Commercia	I Crew Program CCDev		Legend:	= Completion Date				
Funding	Milestone	Completion		2	2011		2012	
		Date	Q2'11		Q3'11	Q4'11	Q1'12	Q2'12
Unfunded	ULA							
	1 - Launch Vehicle Certification Kickoff	07/18/2011		$\overline{}$				
	2 - Design Equivalency Review (DER) Summary Review				abla			
	3 - Probabilistic Risk Assessment (PRA) Review					∇		
	4 - Tailored System Requirements Review (SRR)					7	eg	
	5 - System Requirements Review (SRR)							abla

Updated: 8/16/2011 5